United States Department of Agriculture
Natural Resources Conservation Service

Idaho Water Supply Outlook Report
April 1, 2009

Snow Surveyors Julie Koeberle (NRCS) and Jeremy Giovando (US Army Corps of Engineers) measure over 11 feet of snow at Hemlock Butte SNOTEL in the Clearwater Basin on March 26, 2009. A miracle March made a liar out of the proverb "In like a lion out like a lamb" as Idaho's mountain ranges saw 110-155% of normal precipitation last month and snow continued to pile up through the first week of April. A few SNOTEL sites recorded up to 200% of normal precipitation with monthly totals ranking the month as the second, third or fourth biggest March since the sites were installed almost 30 years ago. The snow came in time to offer water users their own bailout and ensure a good water supply for most of the state.

Basin Outlook Reports
and Federal - State - Private Cooperative Snow Surveys

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How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

IDAHO WATER SUPPLY OUTLOOK REPORT

April 1, 2009

SUMMARY

Idaho's water supply received its bailout in the form of greater than normal March precipitation; this bonus will make it more straight forward for water managers and users to stretch their water budgets to the end of the season. March precipitation ranged from 115% of average in the Bear River basin to 160% along the Montana border from the Selway to the Little Lost basins. A month ago, Idaho had a mediocre snowpack ranging from 70-90% of average, this month percentages increased to 85-100%. Streamflow forecasts mirror the additional moisture with some forecasts increasing up to 30 percentage points from a month ago; they now range from 70-100% of average. With the increased volumes now being predicted, water managers will be watching reservoir storage closely and making flood control releases as needed to maintain required space as the snowmelt season kicks in.

March precipitation gave the Upper Snake basin a boost and the forecast for the Snake River near Heise increased to 101% of average; when combined with reservoir storage this should be more than enough to ensure an adequate supply for the downstream water users in southern Idaho. The only basin to miss the bailout moisture was the Owyhee watershed, which received 87% of average precipitation and has already seen its snowmelt streamflow peak that occurred during mild weather in mid-March. Additional streamflow peaks can occur but will be flashier from rain or hot temperatures that flush the remaining snow from the high country.

The stimulus precipitation was exactly what was needed to prevent the ongoing downward spiral caused by the mid-winter dry spell. Just how efficient this winter's snow will be at producing runoff depends on the future weather and the lingering long-term drought effects such as dry soils and low baseflows. Last year provides a clear example of how the effects of drought can decrease runoff efficiency; at that time central and southern Idaho's snowpack was about 90% of average, but observed runoff dipped to 55-75% of average. This shows that dry soils can soak up runoff and decrease runoff efficiency. Another important consideration is that forecast equations assume normal spring and summer precipitation. This means that for the April 1 snowpacks to produce the 50% chance of exceedance forecast volume the sky cannot be bone dry all spring and summer. Together these are strong reasons why water users in water strapped basins should think about their risk level and consider using a lower volume forecast (70% or 90% chance of exceeding forecast). In contrast for basins where all the water supply puzzle pieces are near normal, including past conditions, then the 50% chance of exceedance forecasts have proven accurate in the past. If a delayed melt occurs this might provide the incentive to use the higher volume forecasts (30% or 10% chance of exceeding forecast). This year basins that have better antecedent soil moisture and baseflows include the Upper Snake, Spokane and Clearwater due to last year's good snow, cool summer temperatures and fall rains. To summarize, water users should consider using the lower volume forecasts during back-to-back dry years and higher volume forecast when above normal years follow each other.

SNOWPACK

Last month we reported that "With only one more month in the snow season, little hope remains for Idaho's snowpack to return to average levels by April 1". However, after much talk and debate about storms avoiding Idaho, the stimulus moisture came through and now 17 out of 65 basins in and around Idaho are at or above 100% of average! While other parts of the country are dealing with too much moisture, Idaho finally got their fair share of above average precipitation for the first month since December. The lowest snowpacks are 62% of average in Mann Creek basin and 78% of average in the Weiser and Moyie basins. The highest snowpacks are 126% of average in Rathdrum basin and 113% in Pacific basin, a tributary to the Snake River in Wyoming. The majority of basins are 85-105% of average. We very seldom provide an overall statewide snowpack percentage, since giving one value for Idaho can be misleading due to average annual precipitation amounts ranging from less than 10 inches in the Snake River Plain to over 100 inches in northern Idaho and the range of percentages is generally too wide to make a statewide value meaningful. This year the snowpack percentages across the state are

almost entirely plus or minus 5 percentage points of each other, so it is fair to say that statewide the snowpack is 93% of average for April 1. There are other ways that this has been an unusual year in terms of winter precipitation. Spokane set an all time record for most snow in a season; nearly 98 inches! In January and February, high and low pressure systems over west-central and central Idaho created a doughnut hole with different wind patterns that prevented much precipitation from falling as some sites only received half of the normal precipitation amounts in the heart of winter. The wind also redistributed the snow different this year as locals were reporting drifts perpendicular to other years.

PRECIPITATION

Weather in the second half of March brought rain in the valley, and 2-3 times valley precipitation amounts to Idaho's mountains with each storm. The abundant March moisture ranked second, third or fourth greatest amounts in the 28 years of collecting daily high elevation precipitation at SNOTEL sites in the northwest. The highest precipitation amounts were 10-14 inches (nearly twice normal) at a few SNOTEL sites in the west-central mountains, Clearwater basin and along the Montana divide. The lowest March amounts were only an inch, 65% of average, at a few stations in the Owyhee basin in Idaho and Nevada. Overall, precipitation amounts in the northern two-thirds of Idaho ranged from 126% of average in the Upper Snake to 155% in the Salmon basin. The basins south of the Snake River received 109% of average precipitation while the Bear River was slightly better at 115%. In contrast, the Southside Snake River basins host the highest water year-to-date precipitation amounts in the state at 105% of average, while the Weiser, Payette and Boise basins host the lowest at 89%.

RESERVOIRS

Big Wood Basin water users that depend on Magic Reservoir for their water already know that the reservoir level is quite low. Currently, Magic Reservoir is only 22% full, 40% of average, and the second lowest in the state. Salmon Falls Reservoir is the least full at 17% of capacity, 44% of average. Generally speaking, the reservoirs that are in central and southern Idaho are storing the lowest amounts. Oakley Reservoir is 32% full; 68% of average, Bear Lake is 29% full; 45% of average, and Lake Owyhee is only half full or half empty (depending on how you see the world), and 60% of average. The seasonal snowmelt peak for the Owyhee River near Rome may have already occurred after losing most of its lower elevation snow, so Lake Owyhee may not increase much more, unless it rains. Snowmelt rates and the occurrence of spring precipitation in the Big Wood, Big Lost and basins south of the Snake River will shape the outcome of available storage for summer supplies in these basins. On the opposite end of the spectrum, there are reservoirs that are near full. These include Henrys Lake and American Falls reservoirs at 97% full. Other reservoirs holding above average storage amounts include: Island Park, Jackson Lake, Palisades, Ririe, Brownlee, Montpelier Creek, the Boise reservoir system, Cascade and Dworshak. With an increase in most streamflow forecasts from last month, reservoir managers will be watching the snowmelt rates to help determine if releases are needed and for the final fill of the reservoirs.

Note: NRCS reports reservoir information in terms of usable volumes, which includes both active, inactive and in some cases, dead storage. Other operators may report reservoir contents in different terms. For additional information, see the reservoir definitions in this report.

STREAMFLOW

Last month had us singing the streamflow forecast blues but things have improved dramatically thanks to a big late season boost to snowpacks. Overall, streamflow forecasts in Idaho increased 12 percentage points from last month. The biggest increase was for the Middle Fork of the Salmon River, which increased a whopping 30 percentage points from 80% of average to 110% in just one month; river runners will see a more extended season than was originally expected. Northern Idaho's rivers in the Panhandle and Clearwater basin are forecast for 90-110% of average flows. Near average flows are forecast for the Salmon River at Salmon, as well as further downstream near White Bird and for the Lemhi River. Forecasts for the Boise, Weiser and Payette Rivers are up 15 percentage points from last month and range from 76% of average for Mores Creek to 83% for the Weiser River and Payette River near Banks and up to 87% for the Boise River near Twin Springs. Forecasts for the water-strapped Wood and Lost basins improved to 65-90% of average, but supplies may just be marginally adequate in these basins. March snows were enough in the Upper Snake to ease concerns over the Snake River near

Heise forecast, which is now forecast at 101% of average and should flow above the critical 80% threshold, discussed in previous reports. All Southside Snake River forecasts increased except for the Owyhee River forecast points, which decreased due to a change in start date of the forecast period from March to April. The middle of the road forecasts for the Southside basins range from 70% of average for the Owyhee River below Owyhee Dam, 83% of average for Oakley Reservoir inflow and up to near average for Salmon Falls Creek and the Bruneau River. The Bear River forecasts saw less change than the rest of the state and are in the 90% of average ballpark plus or minus a few percentage points; the only exception is the Bear River at Stewart Dam forecast at 53% of average. Currently the National Weather Service Climate Prediction Center is saying there is a greater than normal chance of normal to below normal summer precipitation in central and southern Idaho and western Wyoming; water users in these basins might consider using the 70% or 90% Chance of Exceedance Forecasts. The good news is that for most basins the snow added in March will hopefully provide enough runoff to get water users through a dry spell; provided it's not too extreme.

Note: Forecasts published in this report are NRCS forecasts. NRCS uses timely SNOTEL data to provide streamflow forecasts. Jointly coordinated published forecasts by the USDA NRCS and the NOAA NWS are available from the joint west-wide Water Supply Outlook for the Western US at http://www.wcc.nrcs.usda.gov/wsf/westwide.html. The forecast numbers mentioned in this narrative are the volume under the 50% Chance of Exceeding, which means there is a 50% chance the volume will be greater or less than the given value. Water users may wish to use a lesser exceedance forecast to reduce the risk of coming up water short or greater volume to mitigate high flow potential.

RECREATION

March really let the winter recreation continue. Those who enjoy the mountains with a blanket of soft snow got a wonderful springtime bonus! The most powder that fell during the month occurred in the Clearwater basin at Hemlock Butte SNOTEL, where the snow depth on the ground increased by 4 new feet during the month of March; the snow water content increased by 15 inches which means that, before settling, there was about 150 inches (12 feet) of new snowfall using the 10 percent density rule. Hemlock Butte was not alone as the total snow depth at other sites across the state increased by 2 to 3.5 feet since February. The avalanche danger was cranked up a notch with the new snow loading, which made backcountry travels on steep terrain risky. A phone call from a snow surveyor in the Lemhi Range said it was the first time in 24 years that there was too much new snow and drifting to get to one snow measuring site by snowmobile. While downhill skiers and snowboarders enjoyed the powder, cross-country skiing and snowshoeing felt like work; ditto for snowmobiling in some areas! For those who have the spring fever bug, remember that all this new snow will make for nice wildflowers and green hills to hike and bike on, and good streamflow for whitewater and better baseflows for fishing later in the summer. The Selway River is forecast at 112% of average and the Lochsa River at near average. The Salmon basin snow is 99% of normal and close to last year when the flow was 112% of average. The Middle Fork Salmon River is forecast at 110% of average, similar to last year. If high flows are what you are after, look for several days of hot temperatures and rain during the snowmelt season to drive peaks higher. Some of the lowest flows are forecast in the Owyhee basin at 70% of normal, as the snowmelt peak may have already occurred on March 18th. The Bruneau River is forecast for average, which usually means an adequate floating season, but could be much better if spring rains occur.

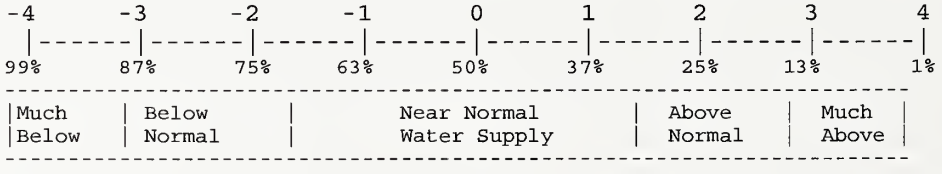
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) *As of April 1, 2009*

The Surface Water Supply Index (SWSI) is a predictive indicator of surface water availability within a watershed for the spring and summer water use season. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow. SWSI values are scaled from +4.0 (abundant supply) to -4.0 (extremely dry), with a value of zero indicating a median water supply as compared to historical occurrences. The SWSI analysis period is from 1971 to present.

SWSI values provide a more comprehensive outlook of water availability by combining streamflow forecasts and reservoir storage where appropriate. The SWSI index allows comparison of water availability between basins for drought or flood severity analysis. Threshold SWSI values have been determined for some basins to indicate the potential for agricultural irrigation water shortages.

BASIN or REGION	*SWSI Value*	*Most Recent Year With Similar SWSI Value*	*Agricultural Water Supply Shortage May Occur When SWSI is Less Than*
PANHANDLE	-0.3	-----	NA
CLEARWATER	1.8	2002	NA
SALMON	0.4	1998	NA
WEISER	-0.9	2000	NA
PAYETTE	-0.4	2003	NA
BOISE	-0.2	2000	-2.1
BIG WOOD	-0.6	2000	-0.5
LITTLE WOOD	0.2	1985	-2.0
BIG LOST	-0.2	2005	-0.1
LITTLE LOST	-0.2	2005	0.4
HENRYS FORK	-0.3	2000	-3.3
SNAKE (HEISE)	1.3	1998	-1.5
OWYHEE	-2.1	2004	NA
OAKLEY	-1.1	2008	-1.1
SALMON FALLS	-1.8	2000	-1.8
BRUNEAU	0.6	1999	NA
BEAR RIVER	-2.8	1993/1994	-3.4

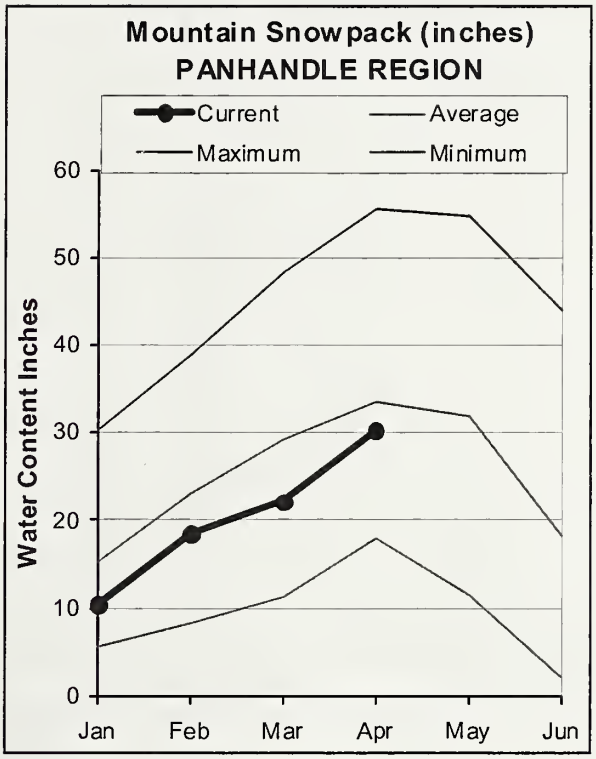
SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION

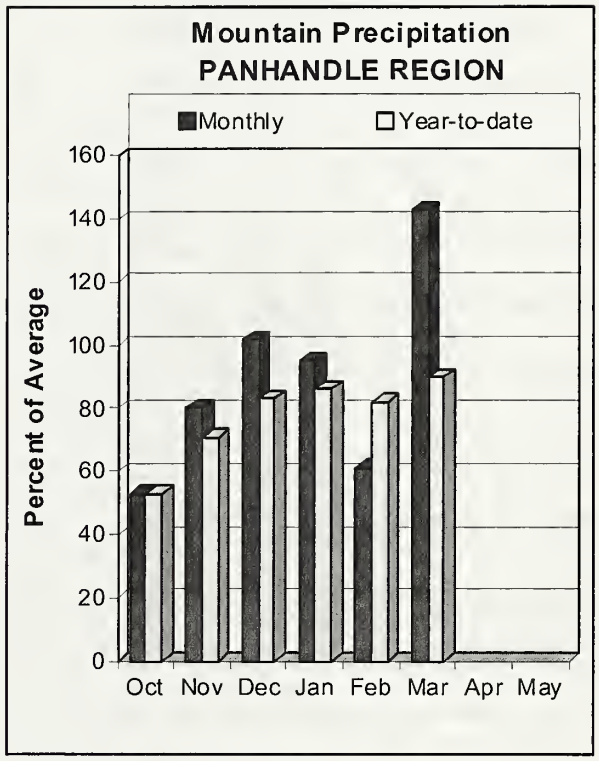


NA = Not Applicable

Note: The Percent Chance of Exceedance is an indicator of how often a range of SWSI values might be expected to occur. Each SWSI unit represents about 12% of the historical occurrences. As an example of interpreting the above scale, the SWSI can be expected to be greater than -3.0, 87% of the time and less than -3.0, 13% of the time. Half the time, the SWSI will be below and half the time above a value of zero. The interval between -1.5 and +1.5 described as "Near Normal Water Supply," represents three SWSI units and would be expected to occur about one-third (36%) of the time.

PANHANDLE REGION
APRIL 1, 2009





WATER SUPPLY OUTLOOK

The 143% of average March precipitation that fell was much needed in the Panhandle region's mountains as the snowpack is about 90% of average as of April 1. The current snowpack is a relief to the water users since the snow was only 76% of average on March 1. Residents in the valleys may be surprised at those numbers as Spokane set a new record of snowfall for the season (almost 98 inches). The lower elevations, below 5000 feet, have had much better than normal snow starting with the big Christmas and New Years storms. The mountains, however, did not receive as much (percentage wise) during that same time frame. The lower elevation SNOTEL sites between 4000 and 5000 feet managed to hang on to the above average snow due to the cold March temperatures. Spring will be here soon; April showers bring May flowers. Currently, seasonal streamflow forecasts call for 85-90% for the Kootenai, Moyie, Smith Creek, Boundary Creek; 95-100% for the Pend Oreille, Clark Fork, Priest River, St. Joe and the Spokane and 108% for the North Fork of Coeur D'Alene River.

PANHANDLE REGION
Streamflow Forecasts - April 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
KOOTENAI at Leonia (1,2)	APR-JUL	5420	6050	6330	90	6610	7240	7040
	APR-SEP	6350	7010	7310	90	7610	8270	8120
MOYIE RIVER at Eastport	APR-JUL	275	330	365	90	400	455	405
	APR-SEP	290	345	380	91	415	470	420
SMITH CREEK	APR-JUL	88	100	109	89	118	130	123
	APR-SEP	90	104	114	88	124	138	129
BOUNDARY CREEK	APR-JUL	88	98	105	85	112	122	123
	APR-SEP	92	103	110	85	117	128	129
CLARK FK at Whitehorse Rpds (1,2)	APR-JUL	10320	10650	10800	96	10950	11280	11300
	APR-SEP	11297	11712	11900	95	12088	12503	12500
PEND OREILLE Lake Inflow (2)	APR-JUL	11600	11900	12100	95	12300	12600	12700
	APR-SEP	12600	13000	13200	95	13400	13800	13900
PRIEST near Priest River (1,2)	APR-JUL	570	730	800	98	870	1030	815
	APR-SEP	625	785	855	98	925	1080	870
NF COEUR D'ALENE RIVER at Enaville	APR-JUL	645	740	800	108	860	955	740
	APR-SEP	683	776	840	108	904	997	780
ST. JOE at Calder	APR-JUL	980	1080	1140	100	1200	1300	1140
	APR-SEP	1040	1130	1200	100	1270	1360	1200
SPOKANE near Post Falls (2)	APR-JUL	2095	2366	2550	100	2734	3005	2550
	APR-SEP	2170	2450	2640	100	2830	3110	2650
SPOKANE at Long Lake (2)	APR-JUL	2270	2610	2840	100	3070	3410	2850
	APR-SEP	2460	2820	3060	100	3300	3660	3070

PANHANDLE REGION
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HUNGRY HORSE	3451.0	2353.0	2311.0	1886.7
FLATHEAD LAKE	1791.0	616.1	604.3	738.5
NOXON RAPIDS	335.0	316.5	300.7	272.9
PEND OREILLE	1561.3	573.4	853.7	763.6
COEUR D'ALENE	238.5	145.5	104.4	169.5
PRIEST LAKE	119.3	51.3	49.4	65.5

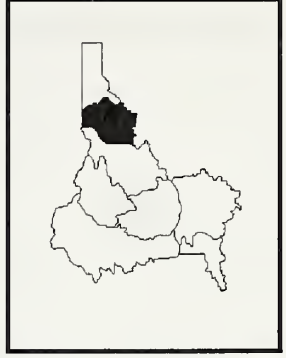
PANHANDLE REGION
Watershed Snowpack Analysis - April 1, 2009

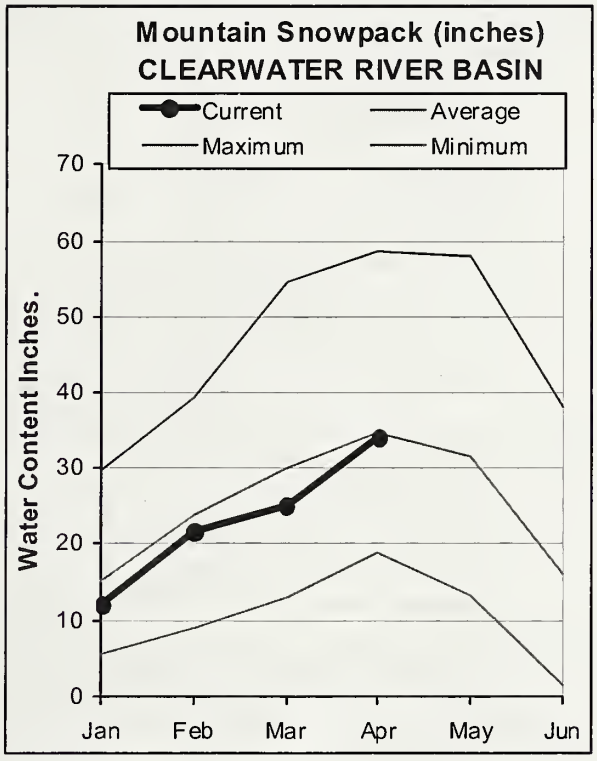
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Kootenai ab Bonners Ferry	32	93	103
Moyie River	9	77	79
Priest River	5	70	87
Pend Oreille River	94	84	96
Rathdrum Creek	4	63	126
Hayden Lake	2	0	133
Coeur d'Alene River	10	69	95
St. Joe River	6	73	91
Spokane River	20	70	100
Palouse River	2	68	115

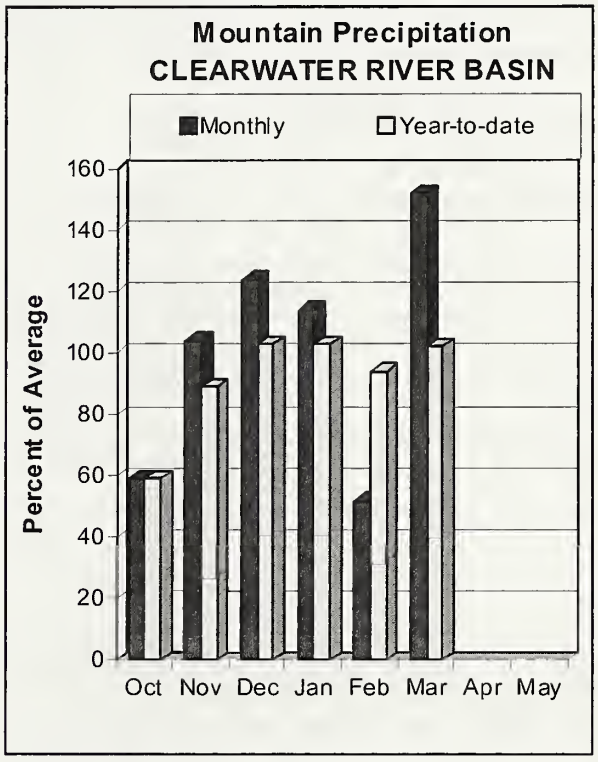
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

CLEARWATER RIVER BASIN
APRIL 1, 2009







WATER SUPPLY OUTLOOK

March was a cold, wintry month and the SNOTEL stations received 152% of average precipitation for the month, while last month the precipitation was only 52% of average. The March precipitation beefed up the snowpack that ranges from 96% of average in the North Fork of the Clearwater, 99% of average in the Lochsa and up to 109% of average in the Selway. Many sites received over two new feet of snow during the last week in March. The observations and density measurements from a snow survey flight the last week in March indicate the snowpack is not ripe to melt yet. Plenty of nice, light powder is still in the mountains. Dworshak Reservoir is currently storing 114% of normal volumes and is 72% full. Streamflow forecasts indicate that runoff volumes will also be near average. There should be ample water for the Clearwater Rivers users. The Selway River is forecast at 112% of average, less than the 123% of last year. The Lochsa River is forecast at 103% of average, and will provide another good runoff season.

CLEARWATER RIVER BASIN
Streamflow Forecasts - April 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Selway R nr Lowell	APR-JUL	2045	2200	2305	112	2410	2565	2060
	APR-SEP	2131	2300	2415	111	2530	2699	2170
Lochsa R nr Lowell	APR-JUL	1370	1495	1580	103	1665	1790	1530
	APR-SEP	1434	1568	1660	103	1752	1886	1610
DWORSHAK RESV Inflow (1,2)	APR-JUL	2047	2462	2650	100	2838	3253	2640
	APR-SEP	2182	2621	2820	101	3019	3458	2800
CLEARWATER R at Orofino (1)	APR-JUL	4167	4788	5070	109	5352	5973	4650
	APR-SEP	4378	5033	5330	109	5627	6282	4900
CLEARWATER at Spalding (1,2)	APR-JUL	6098	7090	7540	102	7990	8982	7430
	APR-SEP	6474	7524	8000	102	8476	9526	7850

CLEARWATER RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DWORSHAK	3468.0	2514.0	2143.2	2205.4

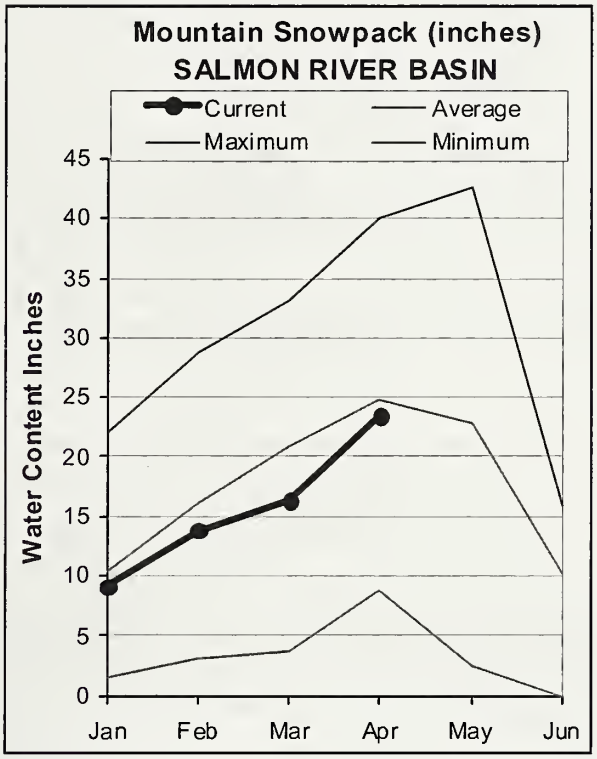
CLEARWATER RIVER BASIN
Watershed Snowpack Analysis - April 1, 2009

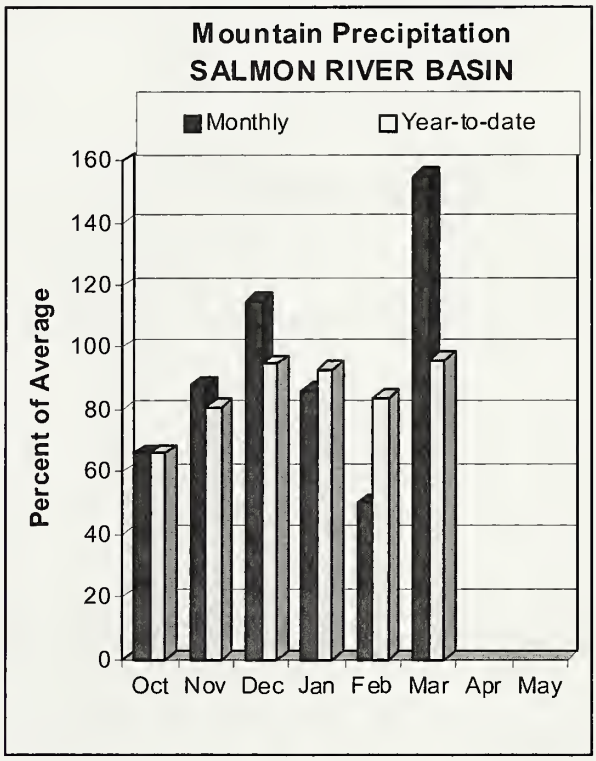
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
North Fork Clearwater	9	78	96
Lochsa River	4	77	99
Selway River	6	87	109
Clearwater Basin Total	19	79	100

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

SALMON RIVER BASIN
APRIL 1, 2009





WATER SUPPLY OUTLOOK

March precipitation brought more than double February's precipitation and was 155% of average. The water year-to-date precipitation stands at 96% of average. The SNOTEL site that measured the most monthly precipitation with respect to normal was Meadow Lake, which received nearly twice its normal monthly allotment. A snow surveyor who attempted to snowmobile into this site recently reported it was the first time in 24 years that route was impassable due to new snow and drifting. The site is situated in the Lemhi Range at an elevation of 9150 ft and drains into the Lemhi River. Overall the Salmon snowpack is 99% of average and very similar to last year at this same time; that's pretty good considering the snow was only 80% of average early last month. The snowpack is best near the continental divide at 108% of average in the Lemhi basin, 104% at the Salmon River above Salmon; while the snow percentages drop off towards the Payette divide at 84% in the South Fork Salmon and 93% for the Little Salmon. The NRCS does not predict the peak streamflows, but those will occur once the snowpack becomes denser and spring brings warmer temperatures. The excellent March precipitation drives the Salmon River seasonal forecasts up from last month to 95% for the upper Salmon and Lemhi; average flows further downstream for the Salmon at White Bird and up to 110% of average for the Middle Fork for April through July.

SALMON RIVER BASIN
Streamflow Forecasts - April 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SALMON at Salmon (1)	APR-JUL	587	744	815	95	886	1043	855
	APR-SEP	674	860	945	95	1030	1216	1000
Lemhi R nr Lemhi	APR-JUL	59	72	82	95	92	109	86
	APR-SEP	73	88	99	94	111	129	105
MF Salmon at MF Lodge	APR-JUL	679	790	865	110	940	1051	785
	APR-SEP	748	874	960	110	1046	1172	875
Salmon at White Bird (1)	APR-JUL	4639	5589	6020	103	6451	7401	5850
	APR-SEP	5093	6157	6640	103	7123	8187	6480

SALMON RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

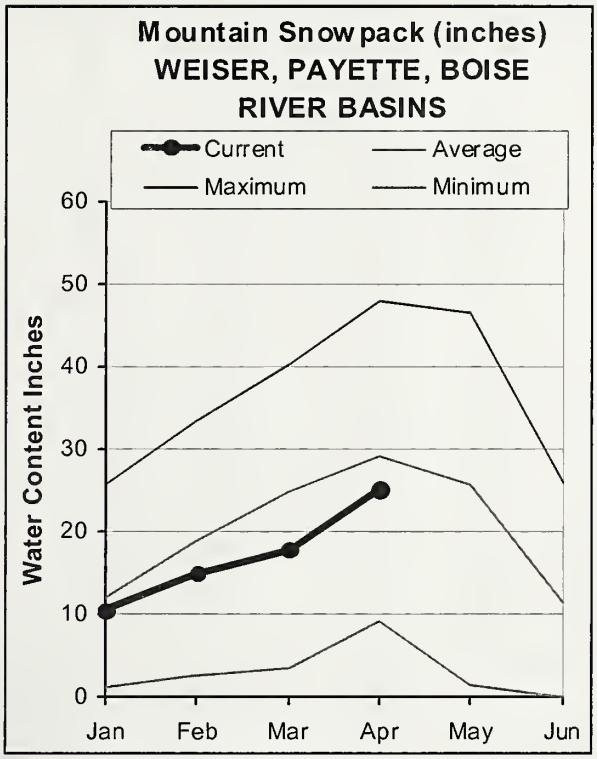
SALMON RIVER BASIN
Watershed Snowpack Analysis - April 1, 2009

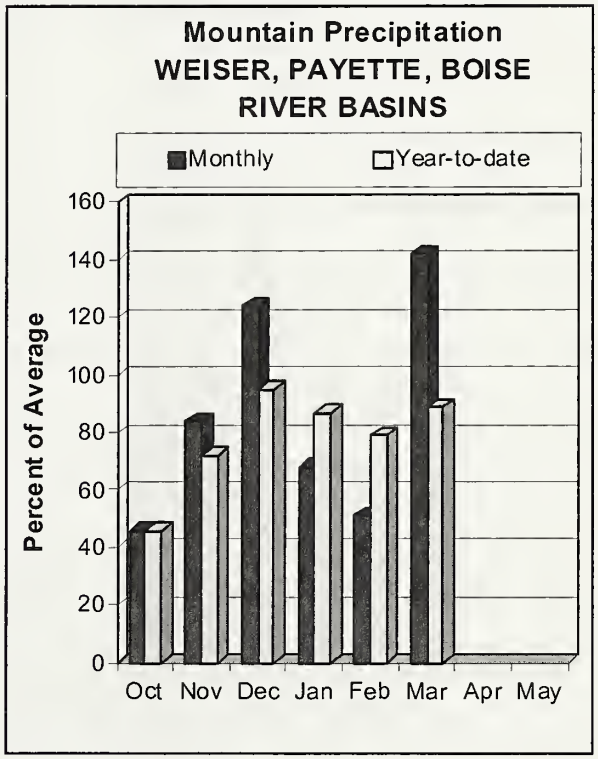
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Salmon River ab Salmon	10	99	104
Lemhi River	12	105	108
Middle Fork Salmon River	3	90	91
South Fork Salmon River	3	81	84
Little Salmon River	4	78	93
Salmon Basin Total	33	92	99

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

WEISER, PAYETTE, BOISE RIVER BASINS APRIL 1, 2009





WATER SUPPLY OUTLOOK

A miracle March boosted lagging snow totals in Idaho's west central mountains. March precipitation ranged from 132% of average in the Weiser Basin to 142% in the Boise Basin and 153% in the Payette Basin. A few SNOTEL sites across the region including Banner Summit (near Stanley), Jackson Peak (near Lowman), Squaw Flat (near Donnelly) and Brundage Reservoir (near McCall) saw 175% to almost 200% of normal monthly precipitation; these are the second or third largest March totals in the 28 years of measurement at these sites. The barrage of storms left April 1 snowpacks across the region at 77-89% of average. This type of jump this late in the season is unusual and makes the water supply outlook much brighter as we continue through spring. Reservoirs across the region are holding average or better amounts and are in good shape to receive snowmelt later in April. The Boise system is 66% of capacity, and the Payette system is slightly higher at 68% of capacity. Thanks to above normal precipitation, streamflow forecasts have increased this month. The Payette River near Horseshoe Bend is forecast at 84% of average, while the Boise River near Twin Springs is forecast at 87% and the Weiser River near Weiser is forecast for 83% of average. Irrigation companies in the Treasure Valley began filling their main canals this week, so as producers prepare to start the irrigation season it is good news that surface water supplies will be adequate this summer barring an unusually hot and dry summer. The Boise Surface Water Supply Index which combines current reservoir storage with the streamflow forecasts is showing that even the 90% chance of exceedance forecast should meet demand in the Boise basin, which gives water users some wiggle room should conditions turn dry later this year.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - April 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Weiser R nr Weiser (1)	APR-SEP	188	291	345	82	404	549	420
SF Payette R at Lowman	APR-JUL	304	340	365	83	391	431	440
	APR-SEP	346	386	415	84	445	490	495
Deadwood Resv Inflow (1,2)	APR-JUL	81	100	109	81	118	137	134
	APR-SEP	86	108	118	83	128	150	142
Lake Fork Payette R nr McCall	APR-JUL	61	69	74	87	80	88	85
	APR-SEP	62	70	76	85	82	91	89
NF Payette R at Cascade (1,2)	APR-JUL	314	404	445	86	486	576	520
	APR-SEP	287	382	425	79	468	563	540
NF Payette R nr Banks (2)	APR-JUL	433	509	560	83	611	687	675
	APR-SEP	446	529	585	84	641	724	700
Payette R nr Horseshoe Bend (1,2)	APR-JUL	1028	1236	1330	81	1424	1632	1640
	APR-SEP	1048	1304	1420	81	1536	1792	1760
Boise R nr Twin Springs (1)	APR-JUL	394	487	530	84	573	666	635
	APR-SEP	453	554	600	87	646	747	690
SF BOISE at Anderson Ranch Dam (1,2)	APR-JUL	314	394	430	80	466	546	540
	APR-SEP	340	426	465	80	504	590	580
MORES CK nr Arrowrock Dam	APR-JUL	67	86	100	76	115	140	131
	APR-SEP	70	90	105	77	121	147	137
BOISE R nr Boise (1,2)	APR-JUN	872	988	1040	83	1092	1208	1260
	APR-JUL	845	1048	1140	81	1232	1435	1410
	APR-SEP	944	1165	1265	83	1365	1586	1530

WEISER, PAYETTE, BOISE RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MANN CREEK	11.1	7.6	5.7	8.8
CASCADE	693.2	500.3	472.1	428.8
DEADWOOD	161.9	84.4	68.0	91.6
ANDERSON RANCH	450.2	271.9	156.1	262.8
ARROWROCK	272.2	235.2	238.8	204.5
LUCKY PEAK	293.2	159.5	183.1	162.6
LAKE LOWELL (DEER FLAT)	165.2	121.9	78.9	126.9

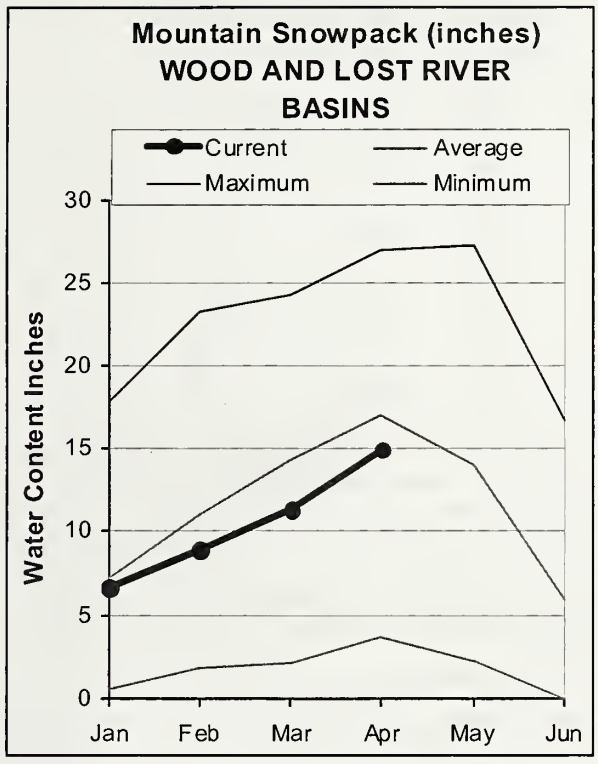
WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - April 1, 2009

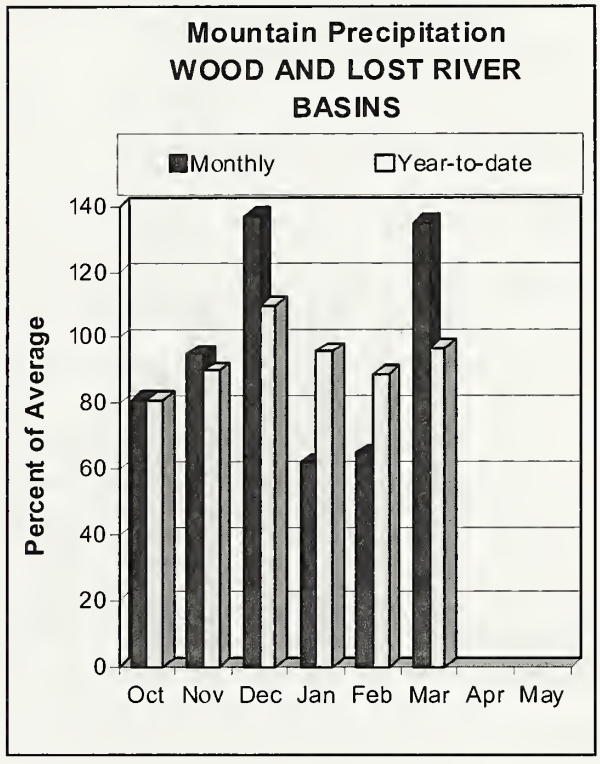
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mann Creek	2	59	62
Weiser River	5	61	77
North Fork Payette	8	76	90
South Fork Payette	5	83	87
Payette Basin Total	14	78	89
Middle & North Fork Boise	5	87	83
South Fork Boise River	9	78	86
Mores Creek	5	68	88
Boise Basin Total	16	76	86
Canyon Creek	2	54	91

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

WOOD and LOST RIVER BASINS
APRIL 1, 2009





WATER SUPPLY OUTLOOK

March precipitation (135% of average) broke a two month long dry spell in the Wood and Lost mountains. The greatest precipitation fell at Bear Canyon SNOTEL, located at 7900 feet in the Big Lost basin, where 181% of its average March amount piled up; this is the fifth greatest March out of 29 years of measurement. March and December provided snowy bookends to this winter and were almost enough to balance out dry conditions in January and February. April 1 snowpacks are below normal at 84% of average in the Big Wood basin, 89-95% of average in the Little Wood and Big and Little Lost basins. Precipitation since October is close to normal but warm temperatures in November prevented storms from laying down early snow in the mountains; this may be the difference between a close to normal snowpack and an above average snowpack. Storage in Little Wood and Mackay reservoirs is close to average at about 65% of capacity; however Magic Reservoir is storing only 40% of average, 22% of capacity. Reservoir storage will begin to improve once temperatures warm up and snowmelt begins, for now cool spring temperatures are holding snow in the mountains and allowing snowpacks to continue to increase. Streamflow forecasts have improved by about 10% since last month. The largest forecast is for the Big Lost at Howell Ranch at 90% of average. The Little Lost River near Howe and Little Wood River above Five Mile Creek are both forecast at just above 80% of average. Camas Creek near Blaine is forecast at 72% and the Big Wood River above Magic Reservoir is forecast for 65% of average. Although streamflows look better than last month keep in mind that the Surface Water Supply Index, which takes into account current reservoir storage and streamflow forecasts, still indicates that supplies will be tight especially in the Big Lost, Big Wood and Little Lost basins. The long-term climate outlook issued by the National Weather Service Climate Prediction Center is calling for a greater than normal chance of dry conditions this spring and summer. Taking this into account, water users may consider using the lower volume streamflow forecasts (70% and 90% chance of exceedance forecasts) when making decisions.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - April 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
BIG WOOD at Hailey (1)	APR-JUL	122	170	195	77	221	285	255
	APR-SEP	137	192	220	76	250	322	290
Big Wood R ab Magic Reservoir	APR-JUL	68	101	124	65	147	180	190
	APR-SEP	76	112	136	66	160	196	205
Camas Ck nr Blaine	APR-JUL	42	59	72	72	86	110	100
	APR-SEP	43	60	73	72	87	111	101
BIG WOOD below Magic Dam (2)	APR-JUL	114	165	200	69	235	286	290
	APR-SEP	120	173	210	69	247	300	305
LITTLE WOOD R abv High Five Ck	APR-JUL	39	53	63	81	74	93	78
	APR-SEP	42	57	68	80	80	100	85
BIG LOST at Howell Ranch	APR-JUL	109	135	155	90	176	209	173
	APR-SEP	122	152	174	88	198	235	197
BIG LOST blw Mackay Resv	APR-JUL	87	105	118	84	131	149	141
	APR-SEP	105	128	144	84	160	183	172
Little Lost R nr Howe	APR-JUL	17.5	22	26	84	30	36	31
	APR-SEP	21	27	31	80	36	44	39

WOOD AND LOST RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MAGIC	191.5	42.9	28.4	107.1
LITTLE WOOD	30.0	18.6	10.9	19.4
MACKAY	44.4	29.2	27.7	32.7

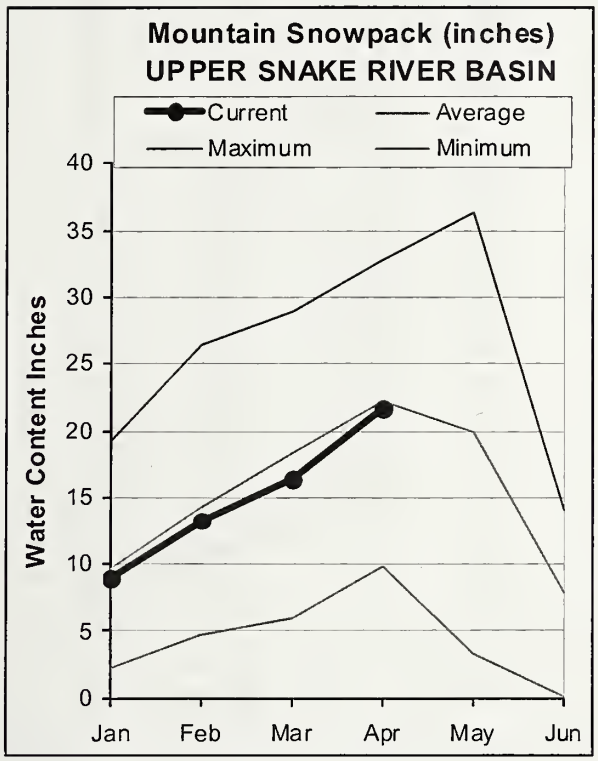
WOOD AND LOST RIVER BASINS
Watershed Snowpack Analysis - April 1, 2009

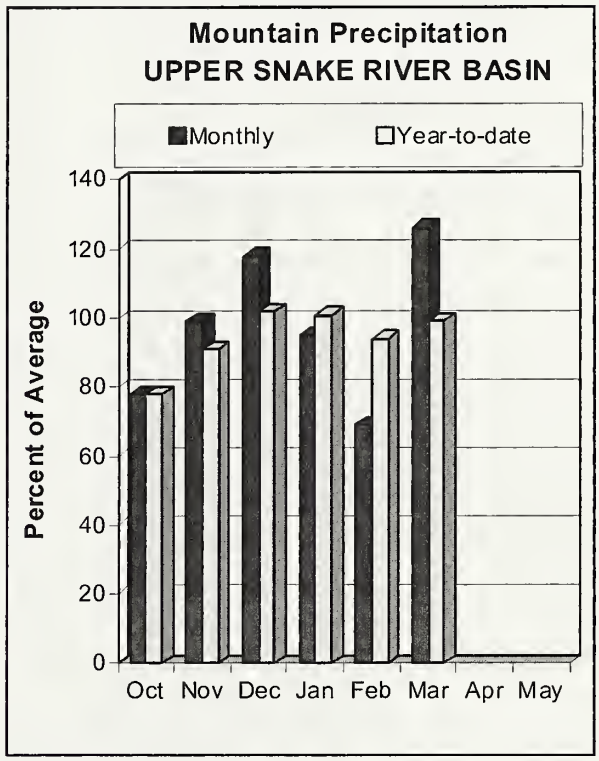
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Big Wood ab Hailey	8	86	83
Camas Creek	5	64	86
Big Wood Basin Total	13	79	84
Fish Creek	3	90	88
Little Wood River	9	92	89
Big Lost River	7	98	92
Little Lost River	4	90	95
Birch-Medicine Lodge Cree	4	90	97
Camas-Beaver Creeks	4	83	89

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

UPPER SNAKE BASINS
APRIL 1, 2009





WATER SUPPLY OUTLOOK

April 1 snowpacks in the Upper Snake above Palisades Reservoir have almost reached average peak amounts as a result of 126% of average precipitation in March. The best precipitation occurred in the headwaters of the Snake River where Two Ocean Plateau and Thumb Divide, both located in Yellowstone National Park, received 176% and 188% of their average March amount, respectively. At Two Ocean, this is the third greatest March out of 29 years of measurement. It is also the third greatest March at Thumb Divide out of 22 years of measurement. Snowpacks in the Henrys Fork and Teton basins are 92% of average and are a little less than on the Wyoming side of the Upper Snake. In comparison with 2008, only the Greys and Salt River basins have exceeded last winter's snowpack totals for April 1. Storage in the Upper Snake reservoir system is 112% of average, 82% of capacity. Most of the Upper Snake Reservoirs are expected to fill this spring. With the boost to the snowpack, the water supply picture is much less in question this month. For users downstream of the Snake River at Heise gage, shortages are only expected if the streamflows are less than 80% of normal. This month's forecast reveals that even the smallest volume forecast (90% chance of exceedance) is calling for about 90% of the average streamflow; most likely enough water to meet demand even if a dry spring and summer occurs. If spring precipitation turns out to be closer to normal, the 50% chance of exceedance forecast indicates that average streamflows will occur.

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - April 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
HENRYS FORK nr Ashton (2)	APR-JUL	398	457	500	88	545	614	570
	APR-SEP	550	623	675	88	729	813	765
HENRYS FORK near Rexburg (2)	APR-JUL	1109	1247	1340	86	1433	1571	1560
	APR-SEP	1457	1613	1720	86	1827	1983	2010
Falls R nr Ashton	APR-JUL	266	303	330	87	358	401	380
	APR-SEP	315	359	390	87	423	473	450
Teton R nr Driggs	APR-JUL	105	128	145	88	163	192	165
	APR-SEP	128	158	180	86	203	240	210
Teton R nr St. Anthony	APR-JUL	264	311	345	85	381	437	405
	APR-SEP	320	375	415	87	457	522	480
Snake River At Flagg Ranch	APR-JUL	462	500	525	106	550	588	495
	APR-SEP	504	546	575	106	604	646	545
SNAKE nr Moran (1,2)	APR-JUL	720	816	860	106	904	1000	815
	APR-SEP	785	898	950	105	1002	1115	905
Pacific Ck At Moran	APR-JUL	144	168	185	108	202	226	171
	APR-SEP	153	178	195	110	212	237	178
SNAKE abv Resv nr Alpine (1,2)	APR-JUL	2027	2249	2350	99	2451	2673	2370
	APR-SEP	2284	2563	2690	99	2817	3096	2730
Greys R Nr Alpine	APR-JUL	312	340	360	106	380	408	340
	APR-SEP	366	401	425	108	449	484	395
Salt R Nr Etna	APR-JUL	278	339	380	112	421	482	340
	APR-SEP	330	407	460	110	513	590	420
SNAKE nr Irwin (1,2)	APR-JUL	2908	3233	3380	102	3527	3852	3330
	APR-SEP	3359	3731	3900	101	4069	4441	3870
SNAKE near Heise (2)	APR-JUL	3199	3438	3600	101	3762	4001	3560
	APR-SEP	3721	4000	4190	101	4380	4659	4160
WILLOW CREEK nr Ririe (2)	APR-JUL	61	78	90	111	102	119	81
Blackfoot R ab Res nr Henry	APR-JUN	40	56	68	93	81	103	73
Portneuf R at Topaz	APR-JUL	49	58	65	80	72	84	81
	APR-SEP	62	72	80	80	88	101	100
Snake River at Neeley	APR-JUL	1864	2597	2930	90	3263	3996	3240
	APR-SEP	1906	2700	3060	87	3420	4214	3510

UPPER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HENRYS LAKE	90.4	87.5	81.3	85.5
ISLAND PARK	135.2	121.3	104.3	114.6
GRASSY LAKE	15.2	13.2	13.7	12.3
JACKSON LAKE	847.0	649.9	349.0	486.6
PALISADES	1400.0	1108.7	640.0	941.5
RIRIE	80.5	45.2	42.1	41.6
BLACKFOOT	348.7	104.7	95.5	229.8
AMERICAN FALLS	1672.6	1616.0	1321.2	1443.2

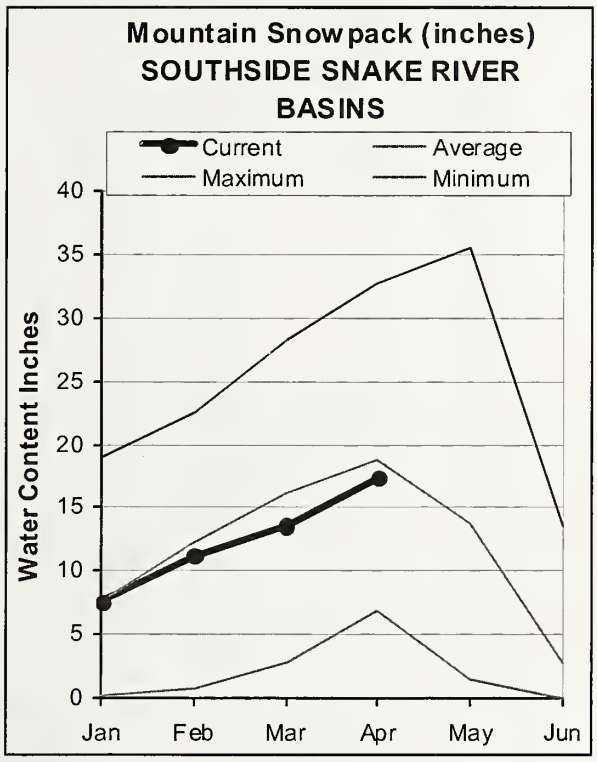
UPPER SNAKE RIVER BASIN
Watershed Snowpack Analysis - April 1, 2009

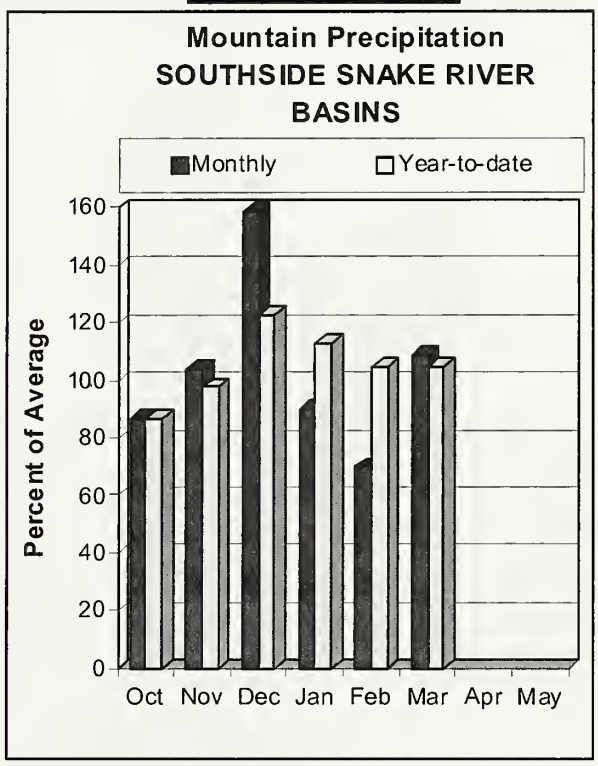
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Henrys Fork-Falls River	9	84	90
Teton River	4	82	92
Henrys Fork above Rexburg	13	83	90
Snake above Jackson Lake	9	89	97
Pacific Creek	3	90	113
Gros Ventre River	2	106	107
Hoback River	5	99	92
Greys River	5	103	103
Salt River	5	106	111
Snake above Palisades	27	93	98
Willow Creek	2	92	94
Blackfoot River	4	94	100
Portneuf River	7	82	87
Snake abv American Falls	42	90	96

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

SOUTHSIDE SNAKE RIVER BASINS
APRIL 1, 2009





WATER SUPPLY OUTLOOK

The Southside Snake River basins received the least amount of March precipitation in the state at 109% of average. Precipitation percentages varied from 87% of average in the Owyhee basin to 146% in Oakley basin. The lowest snowpack in the state is in the Owyhee basin at 86% of average, while Oakley, Salmon Falls and Bruneau basins are near average at 95-105% of average. With an adequate irrigation demand of 110,000 acre-feet on the Salmon Falls Tract and 32,000 acre-feet in the reservoir, runoff of 78,000 acre-feet, or 93% of average is needed to meet the needs. Current streamflow forecast is for 95% of average (80,000 acre-feet) and the forecasts range from 63 to 136% of average (52,000-114,000 acre-feet). Last year's near average snowpack and spring precipitation of 83% of average only produced 66% of average runoff. With lingering drought effects, the Salmon Tract irrigators could see similar supplies as last year or better if the weather cooperates this spring. Oakley irrigators are in a similar situation with half of the 50,000 acre-feet needed in the reservoir and the other half needed in the mountains waiting to melt. Last year's April 1 snowpack of 106% of average only produced 57% runoff due to below normal spring precipitation and lingering drought impacts. Owyhee irrigators should have adequate supplies based on the 354,000 acre-feet in the reservoir, but the bad news is the Owyhee River near Rome may have peaked already from the low to mid-elevation snowmelt. Current snowpack is 86% of average at the higher elevation SNOTEL sites in the Owyhee basin, and is much less than last year's snowpack of 135%, which produced only 86% of average for the Owyhee River near Rome. The Bruneau basin, which has slightly above average snowpack, is forecast near average and should have good flows for river runners but could be better with some cooperation from Mother Nature this spring.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - April 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Oakley Reservoir Inflow	APR-JUL	12.7	19.0	24	83	30	39	29
	APR-SEP	12.4	18.8	24	75	30	39	32
OAKLEY RESV STORAGE	APRIL	36	38	39	95	40	42	41
	MAY	37	40	43	96	46	49	45
Salmon Falls Ck nr San Jacinto	APR-JUN	47	61	72	96	83	102	75
	APR-JUL	49	64	76	95	89	109	80
	APR-SEP	51	67	79	94	92	113	84
Bruneau R nr Hot Springs	APR-JUL	128	172	205	100	241	300	205
	APR-SEP	134	180	215	100	253	315	215
Owyhee R nr Gold Creek (2)	APR-JUL	10.7	16.3	21	84	27	36	25
	APR-SEP	9.6	16.6	23	96	31	45	24
Owyhee R nr Rome	APR-JUL	128	211	280	74	358	491	380
Owyhee R blw Owyhee Dam (2)	APR-JUL	32	153	280	70	407	556	400
	APR-SEP	39	169	295	69	421	607	430
SNAKE RIVER at King Hill (1,2)	APR-JUL	1525	2182	2480	84	2778	3435	2940
SNAKE RIVER near Murphy (1,2)	APR-JUL	1655	2339	2650	86	2961	3645	3090
Reynolds Ck at Tollgate	APR-JUL	4.1	5.3	6.2	76	7.2	8.7	8.2
SNAKE RIVER at Weiser (1,2)	APR-JUL	4500	4534	4550	79	4566	4600	5770
SNAKE RIVER at Hells Canyon Dam (1,2	APR-JUL	4803	4973	5050	81	5127	5297	6210
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	15484	18865	20400	94	21935	25316	21600

SOUTHSIDE SNAKE RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
OAKLEY	75.6	24.5	30.3	36.0
SALMON FALLS	182.6	31.0	36.0	70.2
WILDHORSE RESERVOIR	71.5	29.2	31.1	46.2
OWYHEE	715.0	354.4	316.6	593.0
BROWNLEE	1420.0	1165.1	907.1	1029.5

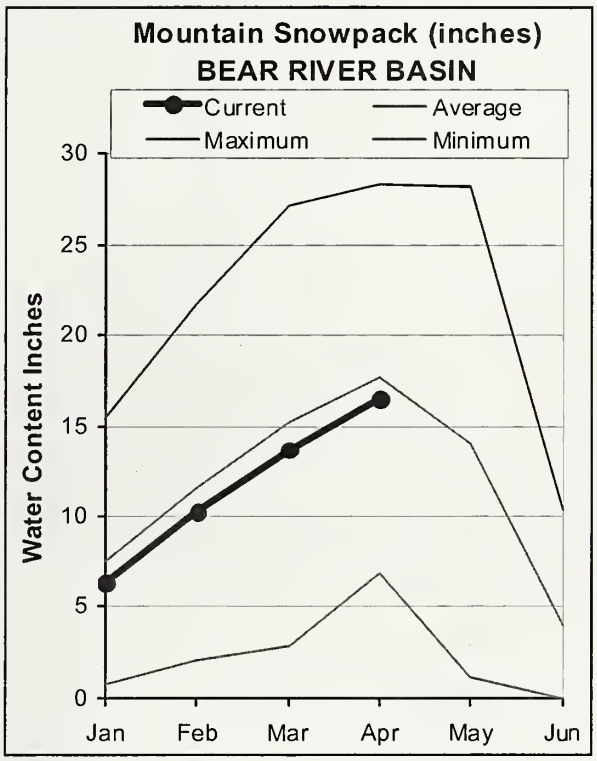
SOUTHSIDE SNAKE RIVER BASINS
Watershed Snowpack Analysis - April 1, 2009

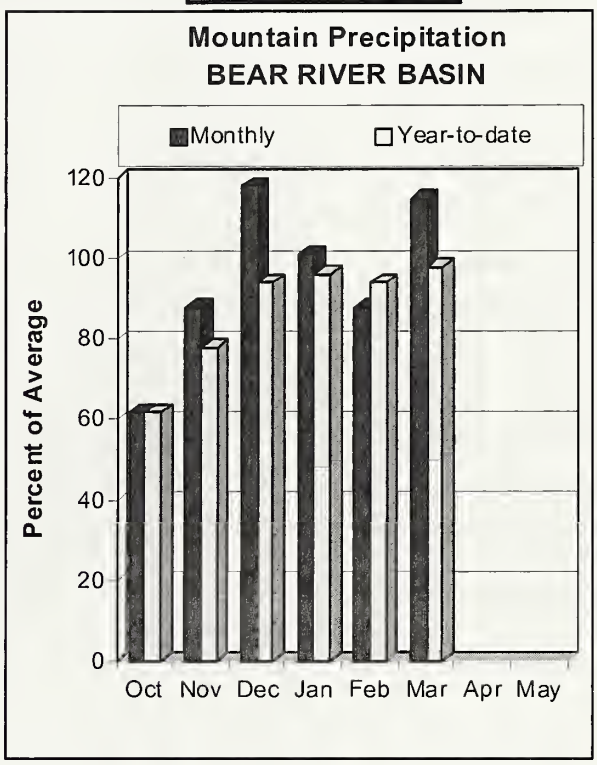
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Raft River	6	90	100
Goose-Trapper Creeks	7	86	95
Salmon Falls Creek	8	92	100
Bruneau River	8	90	104
Reynolds Creek	6	83	92
Owyhee Basin Total	20	60	86

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

BEAR RIVER BASIN
APRIL 1, 2009





WATER SUPPLY OUTLOOK

The 115% of average March precipitation leaves the snowpack in the Bear Basin at 94% of average as of April 1; last year the snowpack was at 98% of average on the same date. SNOTEL sites above 7000 feet indicate that the basin picked up over 1.5 inches or more of snow water and over two feet of new snow in the last 3 days of March! Based on April 1 snow and precipitation data, the forecasts are 90-95% of average for the Bear near the Utah-Wyoming line, Smiths Fork near the Border, the Little Bear, the Logan and Blacksmiths Fork. The Bear River at the Stewart Dam is only going to see half of its normal flow after the water diversions. Based on the NRCS Surface Water Supply Index, which combines the streamflow forecast and reservoir storage (currently only 29% full), indicates that the water supplies will be adequate this year and similar to 1993/1994 but better than 2003-2005. The key to receiving the needed water for the users is how all of this snow melts; warm temperatures and spring precipitation will ensure efficient runoff into the reservoirs, while cooler spring temperatures will slowly ablate the snowpack, but the expected water would not quite make it into the river channels.

BEAR RIVER BASIN
Streamflow Forecasts - April 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bear R nr UT-WY State Line	APR-JUL	76	93	105	93	117	134	113
	APR-SEP	88	107	120	96	133	152	125
Bear River ab Reservoir nr Woodruff	APR-JUL	77	102	120	88	136	161	136
	APR-SEP	82	108	125	88	142	168	142
Big Creek nr Randolph	APR-JUL	2.4	3.4	4.0	82	4.6	5.6	4.9
Smiths Fork nr Border	APR-JUL	75	86	94	91	102	113	103
	APR-SEP	88	101	110	91	119	132	121
Bear River at Stewart Dam	APR-JUL	81	106	125	53	146	179	234
	APR-SEP	91	119	140	53	163	200	262
Little Bear at Paradise, UT	APR-JUL	24	35	43	94	51	62	46
Logan nr Logan, UT	APR-JUL	87	104	115	91	126	143	126
Blacksmith Fk nr Hyrum, UT	APR-JUL	12.5	28	44	92	49	65	48

BEAR RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BEAR LAKE	1421.0	412.5	396.7	923.8
MONTPELIER CREEK	4.0	2.9	1.4	1.7

BEAR RIVER BASIN
Watershed Snowpack Analysis - April 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Smiths & Thomas Forks	4	107	97
Bear River ab WY-ID line	12	93	92
Montpelier Creek	2	85	81
Mink Creek	4	88	97
Cub River	3	93	103
Bear River ab ID-UT line	26	92	94
Malad River	3	69	75

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Streamflow Adjustment List for All Forecasts Published in Idaho Water Supply Outlook Report: streamflow forecasts are projections of runoff volumes that would occur without influences from upstream reservoirs or diversions. These values are referred to as natural, unregulated or adjusted flows. To make these adjustments, changes in reservoir storage, diversions, and inter-basin transfers are added or subtracted from the observed (actual) streamflow volumes. The following list documents the adjustments made for each forecast point. **(Revised Nov. 2007).**

Panhandle River Basins

Kootenai R at Leonia, ID
+ Lake Koocanusa (Storage Change)
Boundary Ck nr Porthill, ID – No Corrections
Moyie R at Eastport, ID – No Corrections
Smith Creek nr Porthill, ID – No Corrections
Clark Fork R at Whitehorse Rapids, ID
+ Hungry Horse (Storage Change)
+ Flathead Lake (Storage Change)
+ Noxon Rapids Resv (Storage Change)
Pend Oreille Lake Inflow, ID
+ Pend Oreille R at Newport, WA
+ Hungry Horse (Storage Change)
+ Flathead Lake (Storage Change)
+ Noxon Rapids (Storage Change
+ Pend Oreille Lake (Storage Change)
+ Priest Lake (Storage Change)
Priest R nr Priest R, ID
+ Priest Lake (Storage Change)
NF Coeur d'Alene R at Enaville, ID - No Corrections
St. Joe R at Calder, ID - No Corrections
Spokane R nr Post Falls, ID
+ Coeur d'Alene Lake (Storage Change)
Spokane R at Long Lake, WA
+ Coeur d'Alene Lake (Storage Change)
+ Long Lake, WA (Storage Change)

Clearwater River Basin

Selway R nr Lowell - No Corrections
Lochsa R nr Lowell - No Corrections
Dworshak Resv Inflow, ID
+ Clearwater R nr Peck, ID
- Clearwater R at Orofino, ID
+ Dworshak Resv (Storage Change)
Clearwater R at Orofino, ID - No Corrections
Clearwater R at Spalding, ID
+ Dworshak Resv (Storage Change)

Salmon River Basin

Salmon R at Salmon, ID - No Corrections
Lemhi R nr Lemhi, ID – No Corrections
MF Salmon R at MF Lodge, ID – No Corrections
Salmon R at White Bird, ID - No Corrections

Weiser, Payette, Boise River Basins

Weiser R nr Weiser, ID - No Corrections
SF Payette R at Lowman, ID - No Corrections
Deadwood Resv Inflow, ID
+ Deadwood R blw Deadwood Resv nr Lowman
+ Deadwood Resv (Storage Change)
Lake Fork Payette R nr Mccall, ID – No Corrections
NF Payette R at Cascade, ID
+ Cascade Resv (Storage Change)
+ Payette Lake (Storage Change)
NF Payette R nr Banks, ID
+ Cascade Resv (Storage Change)
+ Payette Lake (Storage Change)
Payette R nr Horseshoe Bend, ID
+ Cascade Resv (Storage Change)
+ Deadwood Resv (Storage Change)
+ Payette Lake (Storage Change)
Boise R nr Twin Springs, ID - No Corrections
SF Boise R at Anderson Ranch Dam, ID
+ Anderson Ranch Resv (Storage Change)
Boise R nr Boise, ID
+ Anderson Ranch Resv (Storage Change)
+ Arrowrock Resv (Storage Change)
+ Lucky Peak Resv (Storage Change)

Wood and Lost River Basins

Big Wood R at Hailey, ID - No Corrections
Big Wood R abv Magic Resv, ID
+ Big Wood R nr Bellevue, ID
+ Willow Ck
Camas Ck nr Blaine – No Corrections
Big Wood R blw Magic Dam nr Richfield, ID
+ Magic Resv (Storage Change)
Little Wood R abv High Five Ck, ID – No Corrections
Little Wood R nr Carey, ID
+ Little Wood Resv (Storage Change)
Big Lost R at Howell Ranch, ID - No Corrections
Big Lost R blw Mackay Resv nr Mackay, ID
+ Mackay Resv (Storage Change)
Little Lost R blw Wet Ck nr Howe, ID - No Corrections

Upper Snake River Basin

Henrys Fork nr Ashton, ID
+ Henrys Lake (Storage Change)
+ Island Park Resv (Storage Change)
Henrys Fork nr Rexburg, ID
+ Henrys Lake (Storage Change)
+ Island Park Resv (Storage Change)
+ Grassy Lake (Storage Change)
+ Diversions from Henrys Fk btw Ashton to St. Anthony, ID
+ Diversions from Henrys Fk btw St. Anthony to Rexburg, ID
+ Diversions from Falls R abv nr Ashton, ID
+ Diversions from Falls R nr Ashton to Chester, ID
Falls R nr Ashton, ID
+ Grassy Lake (Storage Change)
+ Diversions from Falls R abv nr Ashton, ID
Teton R nr Driggs, ID - No Corrections
Teton R nr St. Anthony, ID
- Cross Cut Canal into Teton R
+ Sum of Diversions for Teton R abv St. Anthony, ID
Snake R nr Moran, WY
+ Jackson Lake (Storage Change)
Pacific Ck at Moran, WY – No Corrections
Snake R abv Palisades, WY
+ Jackson Lake (Storage Change)

Greys R abv Palisades, WY – No Corrections
Salt R abv Palisades, WY – No Corrections
Snake R nr Irwin, ID
+ Jackson Lake (Storage Change)
+ Palisades Resv (Storage Change)
Snake R nr Heise, ID
+ Jackson Lake (Storage Change)
+ Palisades Resv (Storage Change)
Willow Ck nr Ririe, ID
+ Ririe Resv (Storage Change)
Blackfoot Resvervoir Inflow, ID
+ Blackfoot Reservoir releases
+ Blackfoot Resv (Storage Change
Portneuf R at Topaz, ID - No Corrections
Snake River at Neeley, ID
+ Snake River at Neeley (observed)
+ All Corrections made for Henrys Fk nr Rexburg, ID
+ Jackson Lake (Storage Change)
+ Palisades Resv (Storage Change)
+ Diversions from Snake R btw Heise and Shelly
+ Diversions from Snake R btw Shelly and Blackfoot

Southside Snake River Basins

Oakley Resv Inflow, ID
+ Goose Ck abv Trapper Ck
+ Trapper Ck nr Oakley
Salmon Falls Ck nr San Jacinto, NV - No Corrections
Bruneau R nr Hot Springs, ID - No Corrections
Owyhee R nr Gold Ck, NV
+ Wildhorse Resv (Storage Change)
Owyhee R nr Rome, OR – No Corrections
Owyhee R blw Owyhee Dam, OR
+ Owyhee R blw Owyhee Dam, OR (observed)
+ Owyhee Resv (Storage Change)
+ Diversions to North and South Canals
Snake R at King Hill, ID - No Corrections
Snake R nr Murphy, ID - No Corrections
Snake R at Weiser, ID - No Corrections
Snake R at Hells Canyon Dam, ID
+ Brownlee Resv (Storage Change)

Bear River Basin

Bear R nr UT-WY Stateline, UT – No Corrections
Bear R abv Resv nr Woodruff, UT – No Corrections
Smiths Fork nr Border, WY - No Corrections
Bear R blw Stewart Dam nr Montpelier, ID
+ Bear R blw Stewart Dam
+ Rainbow Inlet Canal

Reservoir Capacity Definitions (Units in 1,000 Acre-Feet, KAF)

Different agencies use various definitions when reporting reservoir capacity and contents. Reservoir storage terms include dead, inactive, active, and surcharge storage. This table lists volumes for each reservoir, and defines the storage volumes NRCS uses when reporting capacity and current storage. In most cases, NRCS reports usable storage, which includes active and inactive storage. **(Revised Dec. 2005)**

Basin/ Reservoir	Dead Storage	Inactive Storage	Active Storage	Surcharge Storage	NRCS Capacity	NRCS Capacity Includes
Panhandle Region						
Hungry Horse	39.73	---	3451.00	---	3451.0	Active
Flathead Lake	Unknown	---	1791.00	---	1791.0	Active
Noxon Rapids	Unknown	---	335.00	---	335.0	Active
Pend Oreille	406.20	112.40	1042.70	---	1561.3	Dead+Inactive+Active
Coeur d'Alene	---	13.50	225.00	---	238.5	Inactive+Active
Priest Lake	20.00	28.00	71.30	---	119.3	Dead+Inactive+Active
Clearwater Basin						
Dworshak	---	1452.00	2016.00	---	3468.0	Inactive+Active
Weiser/Boise/Payette Basins						
Mann Creek	1.61	0.24	11.10	---	11.1	Active
Cascade	---	46.70	646.50	---	693.2	Inactive+Active
Deadwood	---	---	161.90	---	161.9	Active
Anderson Ranch	24.90	37.00	413.10	---	450.1	Inactive+Active
Arrowrock	---	---	272.20	---	272.2	Active
Lucky Peak	---	28.80	264.40	13.80	293.2	Inactive+Active
Lake Lowell	7.90	5.80	159.40	---	165.2	Inactive+Active
Wood/Lost Basins						
Magic	Unknown	---	191.50	---	191.5	Active
Little Wood	---	---	30.00	---	30.0	Active
Mackay	0.13	---	44.37	---	44.4	Active
Upper Snake Basin						
Henrys Lake	---	---	90.40	---	90.4	Active
Island Park	0.40	---	127.30	7.90	135.2	Active+Surcharge
Grassy Lake	---	---	15.18	---	15.2	Active
Jackson Lake	Unknown	---	847.00	---	847.0	Active
Palisades	44.10	155.50	1200.00	---	1400.0	Dead+Inactive+Active
Ririe	4.00	6.00	80.54	10.00	80.5	Active
Blackfoot	---	---	348.73	---	348.7	Active
American Falls	---	---	1672.60	---	1672.6	Active
Southside Snake Basins						
Oakley	---	---	75.60	---	75.6	Active
Salmon Falls	48.00	5.00	182.65	---	182.6	Active+Inactive
Wildhorse	---	---	71.50	---	71.5	Active
Owyhee	406.83	---	715.00	---	715.0	Active
Brownlee	0.45	444.70	975.30	---	1420.0	Inactive+Active
Bear River Basin						
Bear Lake	5.0 MAF	119.00	1302.00	---	1421.0	Active+Inactive: includes 119 that can be released
Montpelier Creek	0.21	---	3.84	---	4.0	Dead+Active

Interpreting Water Supply Forecasts

Introduction
Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

90 Percent Chance of Exceedance Forecast. There is a 90 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 10 percent chance that the actual streamflow volume will be less than this forecast value.

70 Percent Chance of Exceedance Forecast. There is a 70 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 30 percent chance that the actual streamflow volume will be less than this forecast value.

50 Percent Chance of Exceedance Forecast. There is a 50 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 50 percent chance that the actual streamflow volume will be less than this forecast value. Generally, this forecast is the middle of the range of possible streamflow volumes that can be produced given current conditions.

30 Percent Chance of Exceedance Forecast. There is a 30 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 70 percent chance that the actual streamflow volume will be less than this forecast value.

10 Percent Chance of Exceedance Forecast. There is a 10 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 90 percent chance that the actual streamflow volume will be less than this forecast value.

*Note: There is still a 20 percent chance that actual streamflow volumes will fall either below the 90 percent exceedance forecast or above the 10 percent exceedance forecast.

These forecasts represent the uncertainty inherent in making streamflow predictions. This uncertainty may include sources such as: unknown future weather conditions, uncertainties associated with the various prediction methodologies, and the spatial coverage of the data network in a given basin.

30-Year Average. The 30-year average streamflow for each forecast period is provided for comparison. The average is based on data from 1971-2000. The % AVG. column compares the 50% chance of exceedance forecast to the 30-year average streamflow; values above 100% denote when the 50% chance of exceedance forecast would be greater than the 30-year average streamflow.

AF - Acre-feet, forecasted volume of water are typically in thousands of acre-feet.

These forecasts are given to users to help make risk-based decisions. Users can select the forecast corresponding to the level of risk they are willing to accept in order to minimize the negative impacts of having more or less water than planned for.

To Decrease the Chance of Having Less Water than Planned for
A user might determine that making decisions based on a 50 percent chance of exceedance forecast is too much risk to take (there is still a 50% chance that the user will receive less than this amount). To reduce the risk of .having less water than planned for, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded such as the 90 or 70 percent exceedance forecasts.

To Decrease the Chance of Having More Water than Planned for
A user might determine that making decisions based on a 50 percent chance of exceedance forecast is too much risk to take (there is still a 50% chance that the user will receive more than this amount). To reduce the risk of having more water than planned for, users can base their operational decisions on one of the forecasts with a lesser chance of being exceeded such as the 30 or 10 percent exceedance forecasts.

Using the forecasts - an Example
Using the 50 Percent Exceedance Forecast. Using the example forecasts shown below, there is a 50% chance that actual streamflow volume at the Boise River near Twin Springs will be less than 685 KAF between April 1 and July 31. There is also a 50% chance that actual streamflow volume will be greater than 685 KAF.

Using the 90 and 70 Percent Exceedance Forecasts. If an unexpected shortage of water could cause problems (such as irrigated agriculture), users might want to plan on receiving 610 KAF (from the 70 percent exceedance forecast). There is a 30% chance of receiving *less* than 610 KAF.

Alternatively, if users determine the risk of using the 70 percent exceedance forecast is too great, then they might plan on receiving 443 KAF (from the **90** percent exceedance forecast). There is 10% chance of receiving less than 443 KAF.

Using the 30 or 10 Percent Exceedance Forecasts. If an unexpected excess of water could cause problems (such as operating a flood control reservoir), users might plan on receiving 760 KAF (from the 30 percent exceedance forecast). There is a 30% chance of receiving *more* than 760 KAF.

Alternatively, if users determine the risk of using the 30 percent exceedance forecast is too great, then they might plan on receiving 927 KAF (from the 10 percent exceedance forecast). There is a 10% chance of receiving more than 927 KAF.

Users could also choose a volume in between any of these values to reflect their desired risk level.

Weiser, Payette, Boise River Basins
Streamflow Forecasts – January 2006

Forecast Point	Forecast Period	Chance of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000 AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SF PAYETTE RIVER at Lowman	APR-JUL	329	414	471	109	528	613	432
	APR-SEP	369	459	521	107	583	673	488
BOISE RIVER near Twin Springs (1)	APR-JUL	443	610	685	109	760	927	631
	APR-SEP	495	670	750	109	830	1005	690

*90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table

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